IN THE CLAIMS

1. – 4. (canceled)

5. **(currently amended)** A virtual private network (VPN) construction system for a public data communication network comprising:

first relaying apparatuses, with one or more virtual ~~relaying structure~~routers each of which is associated with a VPN-ID and a multicast address in a table, generating and multicasting control packets each of which ~~is destined to a~~contains a source address of each virtual router and is transmitted for the multicast address ~~assigned~~ as a destination address corresponding to the VPN-ID of each virtual ~~relaying structure and contains a unicast address specific to the virtual relaying structure~~router, and

second relaying apparatuses, with one or more virtual ~~relaying structure~~routers each of which is associated with a VPN-ID and a multicast address in a table, ~~which receives~~accepting only the control packets ~~from the first~~of the multicast address corresponding to the VPN-ID of each virtual router of the second relaying apparatuses ~~with the multicast address as destined for the virtual relaying structure~~, establishing ~~unicast~~ virtual links using the ~~unicast~~source address in the control packets with the first relaying apparatuses ~~which are transmitting sources of the control packets~~ and returning reply packets to the first relaying apparatuses through the ~~unicast~~virtual links,

whereby the virtual private network is constructed ~~with~~between the virtual ~~relaying structures~~routers that are specific to a same multicast address in the first and the second relaying apparatuses, with the ~~unicast~~virtual links established between all pairs of the virtual ~~relaying structures~~routers and with virtual interfaces receiving packets from outside the public data communication network.

6. (previously presented) The virtual private network construction system as claimed in claim 5 wherein the second relaying apparatuses establishing the unicast virtual links authenticate the control packets received.

7. (previously presented) The virtual private network construction system as claimed in claim 5 wherein the unicast virtual links comprise IP tunnels.

8. (previously presented) The virtual private network construction system as claimed in claim 5 wherein the unicast virtual links comprise MPLS tunnels.

9. **(currently amended)** A relaying apparatus, which terminates virtual private networks (VPNs) within a public data communication network comprising:

virtual ~~relaying structures~~routers each of which is ~~preliminarily~~ associated with a VPN-ID and a multicast address in a table,

a packet unit generating and multicasting control packets each of which ~~is destined to a~~ contains a source address of each virtual router and is transmitted for the multicast address ~~and contains a unicast address specific to the~~as a destination address corresponding to the VPN-ID of each virtual ~~relaying structure~~router, and

a link unit ~~receiving~~accepting only the control packets ~~from~~of the multicast address corresponding to the VPN-ID of each virtual router of one or more other relaying apparatuses ~~with the multicast address as destined for the virtual relaying structure~~, establishing ~~unicast~~ virtual links using the ~~unicast~~source address in the control packets with the one or more other relaying apparatuses which are transmitting sources of the control packets and returning reply packets to the one or more other relaying apparatuses through the ~~unicast~~virtual links,

whereby the virtual private network is constructed ~~with~~ between the virtual ~~relaying structures~~routers that are specific to a same multicast address, with the ~~unicast~~ virtual links established between all pairs of the virtual ~~relaying structures~~routers, and with virtual interfaces receiving packets from outside the public data communication network.

10. (original) The relaying apparatus as claimed in claim 9, further comprising means for authenticating the control packets received.

11. (original) The relaying apparatus as claimed in claim 9, further comprising means for generating a routing table for each of a plurality of virtual networks logically independent of one another, and means for performing a packet relay of each virtual network based on the routing table.

12. (previously presented) The relaying apparatus as claimed in claim 9 wherein the unicast virtual links comprise IP tunnels.

13. (previously presented) The relaying apparatus as claimed in claim 9 wherein the unicast virtual links comprise MPLS tunnels.